Java Exception Handling

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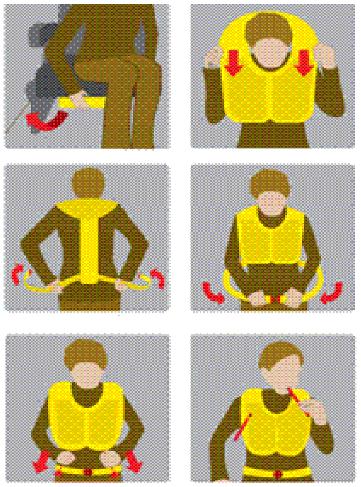
Exception

Def : Abnormal Situation at run time

A Real World Scenario

Ms. Prerana is flying to NewYork



What are these?

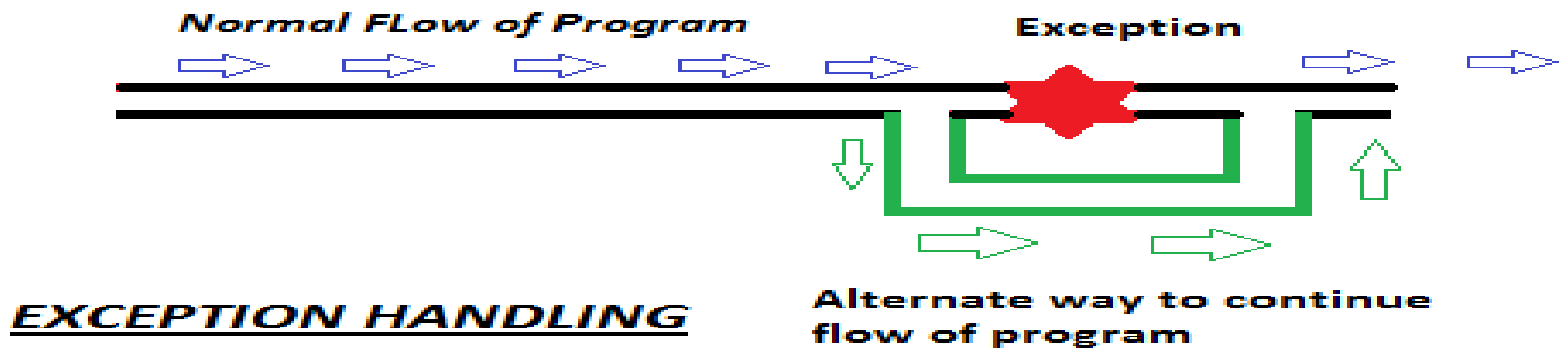
Exception Definition

- An exception is an event that occurs during the execution of a program that disrupts the normal flow of instructions
- The ability of a program to intercept run-time errors, take corrective measures and continue execution is referred to as exception handling

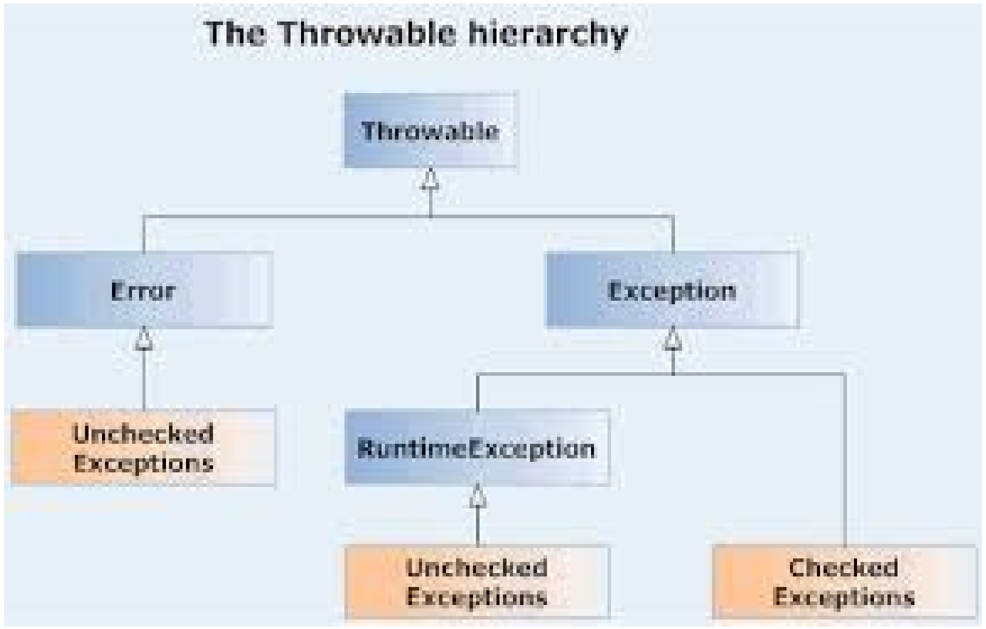
Exceptions – Situations

- There are various situations when an exception could occur:
  - Attempting to access a file that does not exist
  - Inserting an element into an array at a position that is not in its bounds
  - Performing some mathematical operation that is not permitted
  - Declaring an array using negative values

Exception


Normal FLow of Program
Exception
EXCEPTION HANDLING
Alternate way to continue flow of program

Exceptions - Hierarchy



Exception – Example

```
public class  Demo {
      public static void main(String args[]) {
            int dividend = 90;
            int divisor = 0;
            int quotient = dividend/divisor;
            System.out.println(“Quotient   = “
                  + quotient);
      }
 }
```

```
java.lang.ArithmeticException: / by zero
at Demo.main(Demo.java:4)
```

Exception Handling Keywords

Java’s exception handling is managed using the following keywords: **try, catch, throw, throws and finally.**

```
try {
  // code comes here
  }
catch(TypeofException  obj) {
     //handle the exception
   }
       finally  {
            //code to be executed before the program ends
  }
```

Exception Handling Keywords …

- Any part of the code that can generate an exception should be put in the try block

- Any exception should be handled in the catch block defined by the catch clause

- This block is also called the catch block, or the exception handler

- The corrective action to handle the exception should be put in the catch block

Exception Handling - Example

```
public class ExceptionDemo{
        public static void main(String args[]){
                int divisor, dividend, quotient;
                try{
                        divisor = 0;
                        quotient = dividend / divisor;
                        System.out.println(“Message”);
                }
                catch (ArithmeticException e){
                        System.out.println("Division by zero.");
                }
                System.out.println("After catch statement.");
        }
}
```

Checked and Unchecked Exceptions

- A checked exception is an exception that is found at compile time.
- Ex: FileNotFoundException

- A unchecked exception is found at run time.
- Ex: ArithmeticException, NumberFormatException
-       ArrayIndexOutOfBoundsException

printStackTrace()

- We can use the printStackTrace() method to print the program’s execution stack

- This method is used for debugging

printStackTrace() example

```
public class PrintStackExample {
  public static void main(String args[])
  {
      try {
           m1();
      }
      catch(IOException e) {
           e.printStackTrace();
      }
  }
```

contd..

printStackTrace() Example …

```
    static void m1() throws IOException {
        m2();
    }
    static void m2() throws IOException {
        m3();
    }
    static void m3() throws IOException{
        throw new IOException();
    }
}
```

enter
return
THANK YOU
ctrl
control